Artificial Intelligence for Assessment and Feedback to Enhance Student Success in Higher Education

Abstract

The core focus of this review is to show how immediate and valid feedback, qualitative assessment influence enhances students learning in a higher education environment. With the rising trend of online education especially in this COVID-19 pandemic, the role of assessment and feedback also changes. Earlier the assessment part is not considered the main focus in learning and teaching in HEIs, but now with the increase in online education, it is observed that the paradigm is shifted toward assessing those activities of students that enhance their learning outcomes. A lot of research work has been done on developing assessment strategies and techniques that can support learning and teaching effectively. Yet, there is limited research that looks at how methods applied in learning analytics can be used and possibly constitutes the assessment process. The objective of this work is to provide an exploratory and comparative study of how assessment and feedback practices can enhance students learning outcomes using AI. The key contribution of this study attempts to capture an outline of the most used artificial intelligence and machine learning algorithms for student success. The results showed that I-FCN performed better than other techniques (ANN, XG Boost, SVM, Random Forest, and Decision Trees) in all measured performance metrics. Also, the result of the comparative analysis study will help the educators, instructors, and administrators on how they could take the advantage of a data-driven approach, design less pressurized, more valid, reliable, constructive assessment findings, and connect the power of assessment and feedback to enhance the learning outcomes.